

OCEAN GALES AND STORMS, JULY 1934

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Lustrous, Br. S.S.	Preston, England.	New York	44 18 N.	40 56 W.	July 1	3p, July 1	July 1	29.65	SSE	W, 4	S	SSE, 8	SSW-W.
Pres. Harding, Am. S.S.	Cobh	do	48 16 N.	33 23 W.	July 2	4a, 2	July 2	29.79	W	S, 7	W	W, 8	SE-SW.
Cliffwood, Am. S.S.	Copenhagen	New London, Conn.	53 21 N.	29 50 W.	July 9	10a, 9	July 9	29.67	S	SSW, 6	S	SSE, 8	S-SSW-SSE.
Lara, Am. S.S.	New York	San Juan	31 54 N.	70 17 W.	July 13	8p, 13	July 14	29.70	S	S, 8	WSW	SW, 8	S-SW.
Borinquen, Am. S.S.	do	do	32 45 N.	70 55 W.	do	11p, 13	July 13	29.38	SE	NE, 10	NW	NE, 10	SE-NE-NW
Skagerrak, Ger. M.S.	Port Arthur	Manchester	39 40 N.	59 53 W.	July 15	10a, 15	July 15	28.94	SE	S, 12	W	S, 12	SE-S-WNW.
City of Hamburg, Am. S.S.	Havre	Norfolk	41 12 N.	57 00 W.	do	2p, 15	do	29.45	S	S, 10	WSW	SSW, 11	SSE-SSW-WSW.
Paris, Fr. S.S.	do	New York	42 40 N.	54 09 W.	do	11p, 15	July 16	29.64	S	SSW, 10	W	SW, 11	S-SSW-WSW.
Lekhaven, Du. S.S.	Antwerp	Norfolk	43 50 N.	53 15 W.	do	2a, 16	do	29.60	SSW	SW, 8	W	WSW, 9	SSW-SW-W.
Veendam, Du. S.S.	Rotterdam	New York	50 20 N.	14 50 W.	July 20	Noon, 20	July 20	29.37	N	N, 8	N	N, 8	WNW-N.
Seatrail New York, Am. S.S.	Habana	New Orleans	27 00 N.	86 42 W.	July 23	4p, 23	July 23	29.74	SW	SE, 3	SE	SE, 8	SW-SE.
Solana, Am. S.S.	Galveston	Baltimore	26 46 N.	88 30 W.	do	11p, 23	do	29.61	SE	S, 8	S	S, 8	N-SE-SSW.
W. S. Farish, Am. S.S.	Corpus Christi	do	26 22 N.	92 04 W.	July 24	3p, 24	July 24	29.50	W	SW, 10	SSW	SW, 10	NW-SW-S.
Vacuum, Am. S.S.	Port Arthur	Philadelphia	29 18 N.	93 00 W.	do	4p, 24	do	29.68	NE	ESE, 8	SE	SE, 8	NE-E-SE.
NORTH PACIFIC OCEAN													
Californian, Am. M.S.	Los Angeles	Balboa	17 10 N.	101 57 W.	July 8	4p, July 8	July 9	29.76	ENE	ENE, 6	SE	E, 7	ENE-E.
Mobile City, Am. S.S.	Hilo, Hawaii	do	14 32 N.	105 25 W.	July 9	5a, 9	July 10	29.53	NNW	WSW, 8	SSW	WSW, 8	NNW-WSW-SW.
Taisei Maru, Jap. S.S.	Yokohama	Portland, Oreg.	46 00 N.	147 20 W.	July 14	11p, 14	July 14	29.44	WNW	WNW, 8	WNW	WNW, 8	None.
Tascalusa, Br. S.S.	Los Angeles	Manila	20 00 N.	127 35 E.	July 13	5a, 15	July 16	29.62	SW	W, 7	W	SW, 7	Do.
Mancoran, Du. M.S.	Manila	Los Angeles	20 16 N.	129 18 E.	July 14	3a, 16	July 15	29.31	WNW	WSW, 5	W	W, 8	W-WSW.
Do	do	do	25 49 N.	142 09 E.	July 18	2p, 18	July 18	29.57	SE	SE, 7	SSE	SE, 9	E-SE.
St. Therese, Am. M.S.	(3)	(3)	21 19 N.	106 37 W.	do	5a, 19	do	29.85	SE	E, 1	E	SE, 7	SE-E.
Norway Maru, Jap. S.S.	Victoria, B.C.	Yokohama	51 45 N.	106 10 W.	July 23	4p, 23	July 23	30.09	SSE	S, 7	SSE	SSE, 8	S-N.
Fernbrook, Nor. M.S.	Los Angeles	do	44 51 N.	175 36 E.	July 27	Noon, 27	July 27	29.66	SW	SW, 8	SW	SW, 8	SW-W.
Do	do	do	41 13 N.	156 45 E.	July 30	4p, 30	July 30	29.66	WSW	WSW, 8	W	WSW, 9	WSW-W.

¹ Position approximate.² Barometer uncorrected.³ At fishing banks, out of San Diego.

NORTH PACIFIC OCEAN, JULY 1934

By WILLIS E. HURD

Atmospheric pressure.—During July 1934, the greater part of the North Pacific Ocean, except the Tropics and far eastern waters, was under the influence of anti-cyclonic weather conditions. The Aleutian Low, so far as the average pressure for the month is concerned, was nonexistent in southern Alaskan waters, and no disturbances of importance developed over the northern part of the ocean. Pressure at St. Paul, in the Bering Sea, was 0.17 inch above the July normal, but at Juneau it was 0.06 below. These were the extreme July departures for the ocean as noted on table 1.

The average barometer (29.81 inches) at Naha, in the Nansei group, was 0.09 inch above the normal, despite the fact that abnormally low pressures prevailed there from the 13th to 19th, owing to the near proximity of a tropical cyclone.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, July 1934, at selected stations

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow	29.89	-0.03	30.14	2, 3, 25	29.40	7
Dutch Harbor	30.03	+0.09	30.40	24	29.62	18
St. Paul	29.97	+0.17	30.42	24	29.44	19
Kodiak	30.04	+0.10	30.50	1	29.62	15, 18
Juneau	29.99	+0.06	30.39	2	29.35	16
Tatoosh Island	30.09	+0.04	30.36	10	29.69	15
San Francisco	29.97	+0.02	30.10	29	29.84	12
Mazatlan	29.87	+0.02	29.96	3	29.78	24
Honolulu	30.03	+0.01	30.14	29	29.92	26
Midway Island	30.09	-0.02	30.22	29, 30	29.94	12
Guam	29.83	-0.01	29.90	22, 23	29.70	14
Manila	29.76	-0.04	29.92	30	29.52	18
Naha	29.81	+0.09	30.02	30	29.40	15
Chichishima	29.91	+0.06	30.04	22, 29, 30	29.70	11, 16
Nemuro	29.83		30.18	31	29.60	10

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Cyclones and gales.—The generally quiet weather prevalent during June over the North Pacific Ocean continued through July, except that the eastern and western tropics showed somewhat more evidence of disturbed conditions.

In the extra-tropical area the greater number of depressions ran in high latitudes, except for a few comparatively shallow cyclones which proceeded eastward from Japanese waters. Of these lows, only two caused recorded gales, one on the 19th of force 8 and the other on the 30th of force 9. Both occurred between 40° and 45° N., 155° and 170° E. Fresh gales, in addition, were experienced on the 23d, south of Dutch Harbor, and on the 14th, near 46° N., 147° W. That of the 14th was due to a depression, central near 50° N., 135° W., which developed on the 13th and withdrew northward on the 15th.

In Asiatic tropical waters a cyclone appeared at some distance southeast of the Nansei Islands on the 13th. It moved slowly westward until the 18th when, near the northern extremity of the island of Taiwan, it had a barometric depth of 29 inches. Thence it recurved northward and died out on the 23d in the Japan Sea. The cyclone was characterized as a typhoon on the Japanese weather maps. A ship report on the 15th, near 20° N., 129° E., recorded a maximum wind force of 8, and a report from Ishigashima Island on the 17th gave a similar velocity. These are the highest forces for the cyclone shown by our present records.

From the 17th to 19th a small depression moved in the neighborhood of the Ogasawara Islands, and in this disturbed area a southeast gale of force 9, lowest barometer 29.57, was reported on the 18th.

In Mexican west coast waters two disturbances, of which we have only brief record, likewise occurred. The first was noted southwest of Acapulco on the 8th and 9th, with a wind force of 7 from the east. Farther westward, on the 9th, the American S.S. *Mobile City* encoun-

tered a westerly gale of force 8, lowest pressure 29.53 inches, near $14\frac{1}{2}^{\circ}$ N., $105\frac{1}{2}^{\circ}$ W.

In the second instance the American motorboat *St. Therese*, while north of Cape Corrientes on the 18th, experienced a southeast wind of force 7. Mr. Eichler, the observing officer on board, made the following informational comment:

July 18. Had reports from M.S. *San Lucas*, M.S. *Atlantic*, and M.S. *San Salvador*, in vicinity of the Revillagigedo Islands, that wind of hurricane velocity was blowing, accompanied by fog and rain, with an occasional shift of wind.

Fog.—Following upon the unusual and almost complete absence of fog from our west coast waters in June, there was a heavy recurrence of it along the Peninsula of California in July, where it was observed on 10 days. Between San Diego and San Francisco it was experienced on 5 days. The occurrence of fog on the northern steamer routes this month was the maximum thus far this year for that region. Along most of the Great Circle route between the 140th meridian of west longitude and Japan it was observed on 10 percent to 30 percent or more of the days, with the area of greatest frequency south of the Aleutian Islands. One casualty due to dense fog was the sinking of the seiner *Umatilla* by the U.S.S. *Arizona* off Tatoosh Light on July 26. Of nine men aboard the seiner, two were lost as a result of the accident.

TYPHOON AND DEPRESSIONS IN THE FAR EAST JULY 1934

BERNARD F. DOUCETTE, S. J.

During the month of July 1934, 1 typhoon and 4 depressions influenced the weather conditions of the Far East.

The typhoon appeared on the weather map July 15, 6 a.m., near longitude 129° E., latitude 21° N.; observations from S.S. *Manoeran* and S.S. *Tuscalusa* indicated its existence. It moved northwest, changing to west-northwest July 16 and approaching Formosa; July 19, 6 a.m., found the typhoon located over northern Formosa. It then changed its course to the northwest, crossed the Formosa Channel, and entered China, gradually recurving to the north-northeast, and leaving China about 100 miles north of Shanghai. After crossing the Yellow Sea and Korea (July 23), it filled up in the Sea of Japan.

On July 14, a definite southwest current of air began to move over the Philippines, continuing until the typhoon entered China (July 21). Very little precipitation was connected with this southwest air at first. On the evening of July 16, however, heavy precipitation began over the northern part of the Archipelago. At Manila, this was preceded by thunder and lightning to the northwest. For 3 days these heavy rains continued, causing considerable damage to crops and roads. The Ilocos Express of the Manila Railroad Co. was derailed at a washout along the tracks. Baguio was isolated for about 2 days, due to landslides along the mountain roads leading to the city.

Four deaths due to drowning in swollen rivers were reported later in the month. Such, in brief, was the damage caused by a typhoon about 500 miles north-northeast of Manila.

There is good evidence that a northerly current of air existed aloft while these heavy rains prevailed. Surface data from stations along the Formosa Channel on the afternoon of July 16, as well as upper air data given by Hong Kong, show the beginning of this northerly current of air, which continued for the next few days. It seems that interaction between the southwest current of air at the surface and the northerly air aloft caused the heavy precipitation; it is certain that the heavy rains prevailed while Hong Kong had these northerly currents. It is difficult to determine the origin of this air. Surface data from the few interior stations of China show northerly winds; yet it is possible that these upper currents traveled around the periphery of the typhoon and had their origin over southern maritime regions.

On the afternoon of July 19, a front existed in the Formosa Channel. The typhoon was about 100 miles to the east at the time, while the S.S. *Empress of Japan* and the S.S. *Pres. Van Buren* passed from a region of north and north-northeast winds to west-southwest and southwest winds, accompanied by lightning and thunder. The S.S. *Tjisdane* anchored at Beal Harbor (longitude $122^{\circ}20'$ E., latitude $30^{\circ}29'$ N.) from July 20, midnight, until 7 p.m. July 21; during this period the typhoon passed about 150 miles to the west. Winds were mainly from the southeast, force 7 the highest velocity, and 748.4 millimeters (not corrected for gravity) the lowest pressure, recorded (6 p.m. July 20 and 4 a.m. July 21). There were no discontinuities in wind direction at this location as the typhoon passed to the west.

A weak depression, small in area, formed in the Pacific the night of June 30. The next morning, its center was near longitude 123° E., latitude 15° N., from which position it moved westward, crossing Luzon a short distance north of Manila and then slowly moving across the China Sea into Indo China.

A low-pressure area was located July 6 near longitude 131° E., latitude 15° N. It moved northwest, at first rapidly, and then slowly, recurving July 10 and 11 to the northeast near longitude 125° E., latitude 19° N. July 12 found it located at longitude 131° E., latitude 24° N., after which it changed its course more to the north; July 15 was the last day it appeared on the weather map (longitude 136° E., latitude 27° N.).

On July 10, 6 a.m., a depression appeared in the Balingtang Channel, (longitude 120° E., latitude 20° N.) and moved northwest, recurving to the northeast July 12 and 13 south of Macao; it then traveled for 2 days, changing its direction to the east on July 14, and to the north on the 15th near longitude 130° E., latitude 25° N.

On July 29, a depression appeared on the weather map, located northwest of the Island of Hainan. It moved into Indo China the next day, direction northwest.